

A NOTE ON DIRECTIONAL FLIGHTS OF *EUREMA SMILAX* (DONOVAN) (LEPIDOPTERA: PIERIDAE) AND *DANAUS CHRYSIPPUS PETILIA* (STOLL) (LEPIDOPTERA: NYMPHALIDAE) IN VICTORIA

MICHAEL F. BRABY

21 Cromwell Street, Eltham, Vic. 3095

Abstract

Observations on *Eurema smilax* (Donovan) and *Danaus chrysippus petilia* (Stoll) near Melbourne and at Benalla, Victoria, suggest that a low density, westerly migratory flight occurred in both species during February and March 1984. The literature giving records of directional flight for both species in Victoria is summarised.

Eurema smilax (Donovan) and *Danaus chrysippus petilia* (Stoll) are both common and widely distributed throughout most of Australia. However, in Victoria their appearances are sporadic and infrequent (Anderson and Spry 1893, McCubbin 1971, Common and Waterhouse 1981). Published records of sightings or captures of both species around Melbourne are well documented (eg. Lucas 1887, Barnard 1920, Burns 1955, Smith 1965, Condron 1966, Hutchinson 1973, Quick 1974, Anonymous 1984, Braby 1986, Clarke 1987) with most records during spring and autumn for *E. smilax* and from late spring to early autumn for *D. c. petilia*. It is assumed that most appearances of these two conspicuous species near Melbourne are the result of individuals dispersing from areas to the north (Lucas 1887, Anderson and Spry 1893, Burns 1955, McCubbin 1971). They probably do not regularly breed in central and southern Victoria since their larval food plants are scarce (see Common and Waterhouse 1981; Willis 1972).

E. smilax is a regular migrant (Smithers 1983b), but there are few details available on overall patterns of directional flight, particularly in Victoria (Table 1). In New South Wales, the major directional flights are to the south (Waterhouse and Lyell 1914, Williams 1941, Smithers 1983b), although Fisher (1978) records a northerly flight on 27 October 1949 near Broken Hill. Very little is known about the flight patterns of *D. c. petilia*. In New South Wales extensive northerly flights have been recorded during autumn (Smithers 1983a). The only published directional flight record of *D. c. petilia* for Victoria is that of Schwarz (1973) who observed two individuals travelling east at Kyneton on 6 April 1973.

Observations made by the author on directional flight of *E. smilax* and *D. c. petilia* at localities near Melbourne and at Benalla (approximately 165 km NE of Melbourne) in 1982 and 1984 are summarised in Tables

2 and 3. Most observations were made on fine, still sunny days and for each observation butterflies were tracked for 10-30 seconds to ascertain direction of flight. Although no precise details on weather conditions were recorded, the flight in all cases was persistently directional regardless of prevailing weather, for example, wind direction, and/or obstacles.

During the 1981-82 season only one observation was made, when a single individual of *E. smilax* was observed moving east at Eltham in March. The following season *E. smilax* and *D. c. petilia* were absent. However, during the next season (1983-84) both species were conspicuous near Melbourne during February and March, when all individuals observed were flying in a westerly direction. Two earlier observations were made of *D. c. petilia* without obvious signs of directional flight. These were both near Melbourne, where one individual was recorded near Kinglake on 24 November 1983 and another at Eltham on 24 December 1983. Both species appeared to be absent near Melbourne during the following two seasons (1984-85, 1985-86).

Collectively, the observations on flight made during 1983-84 suggests that migrations of both *E. smilax* and *D. c. petilia* occurred near Melbourne and at Benalla (possibly throughout much of central Victoria) during February and March 1984, with relatively low numbers of individuals moving predominantly in a westerly direction.

Numbers of *E. smilax* are generally small, with individuals being widely separated so that migratory flights may be easily overlooked (Smithers 1983b). In New South Wales, southerly flights occur between December and April (Smithers 1983b) and it is possible that, in some years, such migrations may extend into Victoria and Tasmania (ie., during late summer and early autumn). Migratory flights of this magnitude may account for most appearances of *E. smilax* in these two states, where the species is probably not established, although further observations are needed to verify this. The species does not breed in Tasmania (Williams 1941, Common and Waterhouse 1981) and does not appear to breed throughout much of Victoria, except perhaps in the north and northwestern areas of the state where the larval host plants naturally occur.

Studies are needed to assess if easterly flights of *E. smilax* reported in the literature (Table 1) constitute migration, particularly for those recorded during spring. Further observations are also required to determine the extent of migratory flights of *D. c. petilia*, and if this species moves southwards from New South Wales into Victoria.

Table 1. Records for directional flight of *Eurema smilax* in Victoria.

Locality	Date	Flight Direction*	Reference
Gisborne	.x.1894	W	Waterhouse and Lyell (1914)
Kyneton	6.iv.1973	E (2)	Schwarz (1973)
Inglewood	13-14.x.1973	E	Hutchinson and McEvey (1973)
Gisborne	15.x.1973	E (1)	Hutchinson and McEvey (1973)
Sea Lake	viii.1977	S	Fenselau (1977)
Christmas Hills	28.x.1986	E (1)	Braby (1986)

* Numbers of individuals where recorded are given in parentheses.

Table 2. New observations for directional flight of *Eurema smilax* in Victoria

Locality	Date	Time (E.S.T.)	Number observed	Flight Direction
Eltham	26.iii.1982	1500	1	E
Benalla	21.ii. 1984	1000-1300	2	W
Benalla	22.ii. 1984	1500	1	W
Eltham	4. iii.1984	1000	1	W
Kangaroo Ground	4. iii.1984	1100	2	W
Christmas Hills	4. iii.1984	1400	1	W
Kangaroo Ground	4. iii.1984	1430	1	W
Eltham	4. iii.1984	1500	1	NW
Bundoora	5. iii.1984	1200	1	NW
Eltham	6. iii.1984	1400	1	W
Rosebud	10.iii.1984	1130	1	W
Sandringham	10.iii.1984	1300	1	W
Nunawading	10.iii.1984	1400	1	W
Eltham	17.iii.1984	1100	1	W

Table 3. Records of directional flight of *Danaus chrysippus petilia* in Victoria

Locality	Date	Time (E.S.T.)	Number observed	Flight Direction
Eltham	14. ii. 1984	1300	1	W
Eltham	16. ii. 1984	1100	1	W
Eltham	17. ii. 1984	1200-1300	7	W
Eltham	18. ii. 1984	0900	1	W
Eltham	18. ii. 1984	1300	2	NW
Benalla	21. ii. 1984	1000-1500	3	W
Benalla	22. ii. 1984	1000-1500	8	W
Benalla	23. ii. 1984	0900-1100	3	W
Eltham	25. ii. 1984	1200	1	W
Eltham	25. ii. 1984	1500	1	W
Eltham	27. ii. 1984	1000	1	W
Christmas Hills	4. iii.1984	1400	2	W
Kangaroo Ground	4. iii.1984	1430	1	W
Research	4. iii.1984	1500	1	W
Bundoora	5. iii.1984	1200	1	NW

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